defects the size of a pea; ventricle not dilated; cerebral substance firm, uniform, but slightly moist; fatty heart, kidneys and liver.

II.—Brother of preceding, age 33. Normal development. Disease began when 12 years old, first with twitchings, later followed by convulsions and loss of consciousness. The twitchings gradually became so violent that patient was obliged to leave school. He is a large and powerful man of good mental power. The twitchings prevent speech to some extent. There is difficulty in stair-climbing. If anyone goes to his help the convulsions become worse. Many scars on face from falls during epileptic paroxysms. Sometimes he has several of these a day. In the course of time the patient's mind became quite weak, while in body he was helpless, and had to be fed and dressed. Finally, he developed some kind of fever and died with symptoms of paralysis of the brain. Autopsy:—No focal disease of brain; pia of central convolutions cloudy; convolutions, especially of occipital lobes, flattened; high degree of fatty heart.

Both patients gained considerably in weight under Flechsig's treatment, while the convulsions were brought to a standstill. Bresler concludes by calling this complication of epilepsy spinal epilepsy, or epilepsy of spinal origin. He quotes experimental evidence in connection with excitation of the cord (Brown-Sequard, Nothnagel, Unverricht). CLARK.

115 PARECCHI CASI DI MIOCLONIE, LA MAGGIOR PARTI FAMILIARI (Cases of Myoclonus, Mostly Family Cases). D'Alloco (Riforma medica, 1897, I, p. 223).

The author has studied in all 24 cases of myoclonus, and of these 19 occurred in family groups. These cases are briefly described in detail. In a summary the author recapitulates each case and attempts to look upon a number of them as combinations of epilepsy with myoclonus.

First Family Group. Patient No. 1, aged 9 years, male. During the previous year received a blow on the head. One month later a rotary vertigo while at mass, lasting a few moments. A few days later a well-marked attack of petit mal with sensory aura, a fall and loss of consciousness. No mention of convulsions. A similar attack three days later. When examined it was observed that he was affected by clonic fibrillary twitchings, sudden in character, which at times provoked muscular movements of the limbs. These twitchings were especially marked on the abdomen, nates, sides, back, and chest; less marked on the extremities. They were increased with the emotions. Muscular strength well preserved. Reflexes diminished. Numerous stigmata of degeneration were present. The three sisters of the patient, all myoclonic, are not mentioned as having epilepsy. But the contrary is not stated either.

Second Family Group. First patient, a girl aged 10 years. First, she had persistent headache, then one month later, psychical disturbances, ecstasy, hallucinations, etc. There were also attacks of unconsciousness and falling, but no distinct convulsions. Several of these seizures occurred in succession. On examination the usual symptoms of myoclonus were seen to be present. Possible stigmata of degeneration, but intelligence superior. No evidence of psychical disturbances. The patient's brother, aged 14, is also a myoclonic—no mention of epilepsy—and is free from stigmata.

Third Family Group. First patient, a boy aged 5 years, presents numerous features of interest, his case being described at considerable length. Neuropathic inheritance. When he was eight months old the mother observed that when the vertex was touched, the child being then sitting up, it would lose control of its head and fall over. If the face was touched, or even the hair, ever so slightly, the child would fall back, but without loss of consciousness. When seen by D'Alloco, the examinations covering a period of twenty days, the results of previous falls upon the head were evident. There was no doubt that an epileptogenous zone, involving the head and face, was present in the child. Upon this zone a tap with the finger, a slight pressure, or merely stroking the hair, caused a general instantaneous muscular shock, with relaxation of the limbs producing a fall. The author regards this case as a combination of reflex epilepsy with myoclonus. The boy's sister, aged 15, was slightly myoclonic. She was free from evidences of degeneration.

Under the head of general remarks, the author cites the opinion of Seppelli, Unverricht, and Bresler, as authorities on the association of myoclonus and epilepsy. CLARK.

ANATOMY.

116 THE TOTAL NUMBER OF FUNCTIONAL CELLS IN THE CEREBRAL CORTEX OF MAN, AND THE PERCENTAGE OF THE TOTAL VOLUME OF THE CORTEX, COMPOSED OF NERVE CELL BODIES, CALCULATED FROM KARL HAMMARBERG'S DATA; TOGETHER WITH A COMPARISON OF THE NUMBER OF GIANT CELLS WITH THE NUMBER OF PYRAMIDAL FIBERS. Helen Bradford Thompson (Journal of Comparative Neurology, Vol. IX, No. 2, 1899, pp. 113-140).

The estimation of the number of the nerve cells in human cortex cerebri is a problem as scientifically important as it is difficult. In this report appears what is undoubtedly the closest approximation to the fact yet published, and the chief product or result does not a little to further the doctrine of parallelism between consciousness and bodily structure in that *it increases eightfold the largest estimation previously made* regarding the number of these cells. This probable increase careful psychological analysis of the mental side long ago made more than likely, some sort of psychophysical parallelism being always (at least since Spinoza) more than probable.

Miss Thompson's method was simply to perfect the process employed by Hammarberg, Meynert, Wagner, and Donaldson, correcting by recent data their errors of judgment and supplying what they had obviously omitted. Prof. L. F. Barker also must be given the credit for supposing the largest previous estimation too small.

Hammarberg had divided the cortex for convenience of the enumeration into sixteen regions, and made six layers of cells, namely, nerve fibers with a few small scattered cells, small pyramidal cells, large pyramidal cells, small irregularly shaped cells, ganglion cells, and spindle-shaped cells. He employed as the unit-cube of measurement a bit of the cortex 0.1 mm. square, the number of cells in each of these in any particular region being taken as constant.

"If Hammarberg's records were complete in every detail, they should, then, contain the following data upon each of the sixteen regions into which the cortex is divided; first, the thickness of each of the six layers; second, the two diameters in micra for the average cells of each layer; and third, the number of cells in each layer contained in a cube measuring 0.1 mm. on a side. But not all of these data are given for every region. Sometimes the thickness of a layer is omitted; sometimes the size is merely indicated by saying that they are larger or smaller